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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,194	06/20/2002	Stephen F. Haan	120363-1	2557

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EXAMINER

POB. MICHAEL I

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/064,194

Applicant(s)

HAAN ET AL.

Examiner

Michael I Poe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2002.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.  
4a) Of the above claim(s) 16-25 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-15 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 23 April 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20020620, 20020729, 20020801, 20031124  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Amendments*

1. Applicant's amendment filed on July 29, 2002 has been entered. Based upon the entry of this amendment, existing claim 1 has been amended, no existing claims have been canceled, and no new claims have been added. Claims 1-25 are currently pending.

### *Election/Restrictions*

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-15, drawn to a method of forming an embossed substrate, classified in class 264, subclass 403.
  - II. Claims 16 and 17, drawn to a data storage media, classified in class 428 subclass 694R
  - III. Claims 18-25, drawn to an apparatus for embossing, classified in class 425, subclass 174.8R.

3. The inventions are distinct, each from the other because of the following reasons:

Inventions of Group I and Group III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process such as a process wherein the substrate is embossed between the stamper and a support other than a platen (e.g., a roller, a table, etc.).

Inventions of Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process such as a process wherein the stamper is heated by water flowing with the stamper rather than by an inductively heated stamper.

Inventions of Group III and Group II are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this case, the product as claimed can be made by another and materially different apparatus such as an apparatus including a stamper heated by water flowing through the interior surface thereof.

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with applicant's attorney Pamela Curbelo on August 5, 2004, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-15. Affirmation of this election must be made by applicant in replying to this Office action. Claims 16-25 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Drawings***

7. Replacement drawings were received on April 23, 2003. These drawings are acceptable.

#### ***Specification***

8. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length

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since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

In the instant case, the abstract includes phrases that can be implied (e.g., Disclosed herein is) and legal phraseology (e.g., comprises and comprising).

#### ***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, there is no disclosure of a stamper comprising a magnetically permeable material and a resin as set forth in claim 4. Although the stamper can be formed from a laminate as set forth in paragraph #14 of the applicant's original disclosure, there is no disclosure of the materials used for constructing that laminate. Further, although some recited resins are disclosed in conjunction with the material of the substrate in paragraph #31, there is no evidence that these recited resins and thermoplastic materials were intended for constructing the stamper. Because the examiner can not determine what the applicant intended by this claim, this claim is unsearchable and therefore has not treated on its merits for the purpose of this Office action.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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12. Claims 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 includes the recitation "disposing a substrate a platen and a stamper...". This recitation is generally confusing because it appears to be missing word(s) and because it fails to establish the relationship between the substrate, platen and stamper. For the purpose of this Office action, the examiner has assumed that the substrate is disposed between the platen and stamper to allow it to be embossed.

***Claim Rejections - 35 USC § 103***

13. Claims 1-3 and 5-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication No. 02-182433 A (Makoto et al.) in view of U.S. Patent No. 4,563,145 as evidenced by U.S. Patent No. 5,768,673 (Morigami).

**Claims 1-3, 5, 8-11 and 13-15**

Makoto et al. teach a method for preparing of an optical recording medium having a pattern formed (embossed substrate) therein including preheating a plastic sheet 2 by a preheater 9; stamping (disposing and pressing) the plastic sheet 2 (a substrate) between stamping means comprising a heating body 7 (a block) with a stamper 5 (a stamper comprising a negative of a desired surface feature; a receiver comprising the negative) attached thereto wherein the heating body 5 and the stamper 5 are high frequency induction heated (passing an alternating current through) by an induction coil 8 (an induction coil) attached to the heating body 7 and a press plate 4 (a platen); stopping (changing) the application of the high frequency voltage (the alternating electrical current) and supplying cooling water into a cooling water passage 11 of the heating body 7 to perform cooling; and raising the stamper 5 and stopping the supply of the cooling water (JPO abstract). Based upon a partial machine translation of Makoto et al., Makoto et al. further teach that the stamper 5 is made of a ferromagnetic metal such as nickel or iron (the stamper comprises a material selected from the group consisting of nickel, iron...) (page 173, first column, last paragraph through second column, first paragraph). Note that one of ordinary skill in the art would have recognized that nickel and iron have relative magnetic permeabilities greater than or equal to about 400, and therefore would be considered magnetically impermeable as defined in the applicant's

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disclosure in paragraph #11. Note further that, as evidenced by the table on lines 45-59 of Morigami, the typical relative magnetic permeability of nickel is about 400 (about 400 to about 800; greater than or equal to about 400).

Makoto et al. do not specifically teach that the heating body is magnetically permeable and has a relative magnetic permeability of about 1 to about 2 and that the stamper has a portion having a magnetic permeability of less than or equal to about 100. Although Makoto et al. teach that the heating body comprises an induction coil and a hollow conduit for cooling, Makoto et al. further do not teach that the induction coil comprises a hollow conduit forming a thermal channel wherein cooling is accomplished by flowing a thermally convective medium through the thermal channel. However, U.S. Patent No. 4,563,145 teaches an alternatively heatable and coolable molding block that can be used in a press in conjunction with a similar molding block to form both sides of a substrate including a base plate of glass or another electrically insulating material (a magnetically permeable block) having a flat induction coil formed of copper pipe (a hollow conduit forming a thermal channel; thermal channels) embedded therein for supplying a heating alternating high-frequency voltage (an alternating electrical current) to the base plate and for containing a supply of cooling water (thermally convective medium) flowing through the base plate; a layer of a ferromagnetic material such as iron adjacent the base plate on one side and adjacent a layer of a material of good thermal conductivity such as copper on the other side (the stamper further comprises a portion); and a metal mold (a stamper) containing information on the outside of the layer having good thermal conductivity (column 2, lines 6-41). Note that, as evidenced by the table on lines 45-59 of Morigami, the typical relative magnetic permeability of glass and copper is about 1 (about 1 to about 2; less than or equal to about 100). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use a heating body comprising a base plate of glass or another electrically insulating material having a flat induction coil formed of copper pipe embedded therein for heating by high-frequency induction heating and for cooling by a cooling fluid in the process of Makoto et al. as taught by U.S. Patent No. 4,563,145 to thereby provide a stamper that provided uniform heating with high energy efficiency (see column 1, lines 38-40 of U.S. Patent No. 4,563,145). Note that one of ordinary skill in the art would have recognized that the stamper in the process of Makoto et al. in view of U.S. Patent No. 4,563,145 has a relative magnetic

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permeability gradient because the relative magnetic permeability of the heating body formed of glass or another electrically insulating material is much lower than the relative magnetic permeability of the stamper made of nickel or iron as discussed more extensively above.

**Claims 6 and 7**

The discussion of Makoto et al., U.S. Patent No. 4,563,145 and Morigami as applied to claim 1 above applies herein.

As discussed above, Makoto et al. in view of U.S. Patent No. 4,563,145 teach a stamper including a heating body comprising a base plate of glass or another electrically insulating material having a flat induction coil formed of copper pipe embedded therein (a recess adjacent the magnetically impermeable stamper; the induction coil is disposed in the recess) for heating by high-frequency induction heating and for cooling by a cooling fluid (a source in fluid communication with the recess). However, Makoto et al. in view of U.S. Patent No. 4,563,145 do not specifically teach that a cooling gas instead of a cooling liquid could be used to cool the heating body of the stamper. In this regard, the examiner takes official notice that it was well known in the art at the time the invention was made to use cooling gases such as air instead of cooling fluids for internally cooling molds. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use a cooling gas in place of the cooling fluid in the process of Makoto et al. in view of U.S. Patent No. 4,563,145 as was well known in the art to provide a cooling medium that requires less energy to cool and that can be cooled more rapidly.

**Claim 12**

The discussion of Makoto et al., U.S. Patent No. 4,563,145 and Morigami as applied to claim 1 above applies herein.

Makoto et al. further teach that a metal film layer is provided on the base sheet after embossing to form a reflecting film (disposing a layer on the embossed substrate, wherein the layer is selected from the group consisting of ... a reflective layer, ...) (JPO abstract).



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**Conclusion**

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 3,912,799 (Chisholm), U.S. Patent No. 4,341,714 (Gregg et al.), U.S. Patent No. 4,435,802 (Sakamoto et al.), U.S. Patent No. 4,500,484 (Gregg), U.S. Patent No. 5,032,703 (Henschen et al.), U.S. Patent No. 5,466,319 (Zager et al.), U.S. Patent No. 6,528,771 B1 (Matsen et al.), U.S. Patent Publication No. 2004/0041303 A1 (Kim et al.), U.S. Patent Publication No. 2004/0150135 A1 (Hennessey et al.) and the Derwent abstract of SU 1344481A (Shapiro) have been cited of interest to show the state of the art at the time the invention was made.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael I Poe whose telephone number is (571) 272-1207. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael Poe/mip



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